



TECHNICAL DATA SHEET

NITTO DENKO CORPORATION
Semiconductor Related Products Divis

CLEAR TRANSFER MOLDING COMPOUND NT-8500P

NT-8500P is an epoxy resin compound for use in transfer molds, and as an optical semiconductor packaging material it possesses superior characteristics.

1. FEATURES

- 1) It is high cross-linking, and exhibits good resistance to high-low temperature-cycle load
- 2) Use of high purity materials generates good performance at high temperature and high humidity..

2. MOLDING CONDITIONS

Different curing condition will be applied with different mold design, package type, device type etc. General recommendation is as follows.

Outer releasing agent (silicones or fluorinated compounds) must be applied onto the mold surface prior to use of this product to ease its release from the mold dies.

Molding condition:

| | |
|--------------------|--|
| Mold Temperature: | 150 – 160 °C |
| In-mold cure time: | 3.0 – 5.0 min |
| Transfer pressure: | 3 – 8 MPa (30 – 82 kgf/cm ²) |

Post mold curing condition

| | |
|---------------------|-----------------------------------|
| Temperature x time: | 150 °C x 2 hrs, or 120°C x 16 hrs |
|---------------------|-----------------------------------|

Note:

Post cure time above is the required time after molded packages reach to the indicated temperature. Temperature rising rate of molded package changes depending on air flowing condition and heat capacity of packages and their holders in the oven. Please confirm the time needed to reach the cure temperature and add that time to recommended one above.

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3. PROPERTIES

3.1 GENERAL PROPERTIES

Inspected specimens were cured under following condition.

In-mold curing : 150 °C x 4 min

Post mold curing : 150 °C x 2 hrs

| PROPERTY | TEST CONDITION | UNIT | VALUE | REMARKS | |
|--------------------------|----------------|-------------------|----------------------|--------------|--------------------|
| Specific Gravity | JIS K 6911 | — | 1.25 | | |
| Hardness | Shore D | | 84 | | |
| Molding shrinkage | JIS K 6911 | % | 1.30 | | |
| Water Absorption | | wt% | 0.14 | 25±5°C 24hrs | |
| Boiling Water Absorption | | | 0.26 | 95°C × 1h | |
| Flexural Strength | | N/mm ² | 125 | | |
| Flexural Modulus | | | 3200 | | |
| CTE below Tg | | K ⁻¹ | 6.2x10 ⁻⁵ | | |
| CTE above Tg | | | 17x10 ⁻⁵ | | |
| Tg - (TMA) | | °C | 134 | | |
| Tg - (DSC Tmg) | | | 130 | | |
| Volume Resistivity | | Ω·cm | 37x10 ¹⁵ | 25°C | |
| Dielectric Constant | | — | 3.6 | 1MHz | |
| Dissipation Factor | | % | 1.4 | 1MHz | |
| Transmittance at 400 nm | | Spectrophotometer | % | >90 | 1.0mm ^t |
| Refractive Index | | Abbe method | | 1.56 | at 589.3 nm |

* The above values are not specifications and cannot be guaranteed.

3.2 IONIC IMPURITIES IN EXTRACTED WATER

Test Method

Preparation of specimen

Molding condition : 150 °C x 4 min

Post cure condition : 150 °C x 2 hrs

Extracting Condition

Specimen : 60 mesh pass granulated product

Extraction : 121 °C x 0.2 MPa (2 atm) x 20 hrs

| PROPERTY | UNIT | VALUE |
|-----------------------|--------------------------------|-------|
| Electric Conductivity | $\mu\Omega^{-1}\cdot\text{cm}$ | 300 |
| pH | — | 3.1 |
| Na ⁺ | ppm | 2.0 |
| Cl ⁻ | ppm | 80 |

* Measured by : Na⁺ = Atomic absorption spectrometry, Cl⁻ = Ionic chromatography

* Above figures are typical ones and not for specification purposes.

4. ATTENTION

Before use, see Material Safety Data Sheet (MSDS) of this product.